WE CLAIM:

1. An article, comprising:
   a) a coating comprising the reaction product of:
      i) a metal oxide composition;
      ii) a solvent; and
      iii) a surfactant; and
   b) a substrate.

2. The article of claim 1 wherein the metal of the metal oxide composition is selected from the group consisting of a transition metal of Groups 3-12 metal, a Group 13-15 metal or metalloid, and combinations thereof.

3. The article of claim 1 wherein the metal oxide composition is a dispersion selected from colloidal silica, alumina, and titania.

4. The article of claim 3 wherein the colloidal silica, alumina, or titania has a mean particle size ranging from about 5 to about 20 nm.

5. The article of claim 4 wherein the colloidal silica, alumina, or titania has a mean particle size of about 8 to about 10 nm.

6. The article of claim 3 wherein the dispersion has a dispersant selected from the group consisting of water and a substituted or unsubstituted aliphatic or aromatic cyclic alcohol having from 1 to about 25 non-hydrogen atoms.

7. The article of claim 6 wherein the alcohol is selected from the group consisting of methanol, ethanol, propanol, iso-propanol, 1-butanol, 2-butanol, *tert*-butyl alcohol, a methyl butanol, a dimethyl butanol, cyclohexanol, phenol, 2-ethyl hexanol, 1-dodecanol, and mixtures thereof.

8. The article of claim 1 further comprising a second metal oxide composition.

9. The article of claim 8 wherein the second metal oxide composition is alumina.

10. The article of claim 1 wherein the solvent is a substituted or unsubstituted aliphatic, aromatic or cyclic alcohol having from 1 to about 25 non-hydrogen atoms.

11. The article of claim 1 wherein the solvent is selected from the group consisting of water, a substituted or unsubstituted aliphatic, aromatic or cyclic alcohol having from 1 to about 25 non-hydrogen atoms, ethylene glycol, ethylene glycol monobutyl ether, ethylene glycol acetate monoethyl ether, diethylene glycol, diethylene glycol monobutyl ether, toluene, xylene, ethyl acetate, butyl acetate, methyl ethyl ketone, methyl isobutyl ketone, methyl ethyl ketoxime, mono propylene glycol tertiary butyl ether, propoxy propanol, and mixtures thereof.

12. The article of claim 1 wherein the surfactant is selected from the group consisting of ethoxylated acetylenic alcohols, sodium sulfosuccinate, ethylene oxide alkyl phenols, ethylene oxide alcohols, sodium laurel ether sulfate, block ethylene oxide/polyethylene oxide copolymer, an ethoxylated amine, ethoxylated sorbitan ester, random ethylene oxide/polyethylene oxide copolymers, and mixtures thereof.

13. The article of claim 1 wherein the coating has a pencil hardness ranging from about 4B to about 4H.

14. The article of claim 12, wherein the pencil hardness ranges from about 2B to about 2H.

15. The article of claim 1 wherein a water drop placed on the coating has a contact angle of 0 to about 10°.

16. The article of claim 15 wherein the contact angle 0 to about 2°.

17. The article of claim 1 wherein the substrate is a glass, plastic, metallic, stone or ceramic surface.

18. The article of claim 1 wherein the substrate is a window of a car, house, or door.

19. A method of making an article, comprising:

a) applying the reaction product of a metal oxide composition, a solvent, and a surfactant to a substrate; and

b) drying the reaction product on the substrate to form a hydrophilic coating over at least a portion of the substrate.

20. The method of claim 19 wherein the metal of the metal oxide composition is selected from the group consisting of a transition metal of Groups 3-12 metal, a Group 13-15 metal or metalloid, and combinations thereof.

21. The method of claim 19 wherein the metal oxide composition is a dispersion selected from colloidal silica, alumina, and titania.

22. The article of claim 21 wherein the colloidal silica, alumina, or titania has a mean particle size ranging from about 5 to about 20 nm.

23. The method of claim 22 wherein the colloidal silica, alumina, or titania has a mean particle size of about 8 to about 10 nm.

24. The method of claim 21 wherein the dispersion has a dispersant selected from the group consisting of water and a substituted or unsubstituted aliphatic or aromatic cyclic alcohol having from 1 to about 25 non-hydrogen atoms.

25. The method of claim 19 further comprising a second metal oxide composition.

26. The method of claim 25 wherein the second metal oxide composition is alumina.

27. The method of claim 19 wherein the solvent is a substituted or unsubstituted aliphatic, aromatic or cyclic alcohol having from 1 to about 25 non-hydrogen atoms.

28. The method of claim 19 wherein the solvent is selected from the group consisting of water, a substituted or unsubstituted aliphatic, aromatic or cyclic alcohol having from 1 to about 25 non-hydrogen atoms, ethylene glycol, ethylene glycol monobutyl ether, ethylene glycol acetate monoethyl ether, diethylene glycol, diethylene glycol monobutyl ether, toluene, xylene, ethyl acetate, butyl acetate,

methyl ethyl ketone, methyl isobutyl ketone, methyl ethyl ketoxime, mono propylene glycol tertiary butyl ether, propoxy propanol, and mixtures thereof.

29. The method of claim 19 wherein the surfactant is selected from the group consisting of ethoxylated acetylenic alcohols, sodium sulfosuccinate, ethylene oxide alkyl phenols, ethylene oxide alcohols, sodium laurel ether sulfate, block ethylene oxide/polyethylene oxide copolymer, an ethoxylated amine, ethoxylated sorbitan ester, random ethylene oxide/polyethylene oxide copolymers, and mixtures thereof.

30. The method of claim 19 wherein the coating has a pencil hardness ranging from about 4B to about 4H.

31. The method of claim 30 wherein the pencil hardness ranges from about 2B to about 2H.

32. The method of claim 19 wherein a water drop placed on the coating has a contact angle of 0 to about 10°.

33. The method of claim 32 wherein the contact angle 0 to about 2°.

34. The article of claim 19 wherein the substrate is a glass, plastic, metallic, stone or ceramic surface.

35. The article of claim 19 wherein the substrate is a window of a car, house, or door.

36. An article, comprising:

a) a substrate; and

b) a hydrophilic coating on the substrate wherein the coating consists essentially of the reaction product of a metal oxide composition and a solvent.

37. The article of claim 36 wherein the metal of the metal oxide composition is selected from the group consisting of a transition metal of Groups 3-12 metal, a Group 13-15 metal or metalloid, and combinations thereof.

38. The article of claim 36 wherein the metal oxide composition is silica, alumina, titania, or combinations thereof.

39. The article of claim 37 wherein the metal oxide composition in the dispersion has a mean particle size ranging from about 5 to about 20 nm.

40. The article of Claim 39 wherein the metal oxide composition has a mean particle size of about 8 to about 10 nm.

41. The article of claim 36 wherein the metal oxide composition comprises a metal oxide dispersion having a dispersant selected from the group consisting of water and a substituted or unsubstituted aliphatic or aromatic alcohol having from 1 to about 25 non-hydrogen atoms.

42. The article of claim 41 wherein the alcohol is selected from the group consisting of methanol, ethanol, propanol, iso-propanol, 1-butanol, 2-butanol, *tert*-butyl alcohol, a methyl butanol, a dimethyl butanol, cyclohexanol, phenol, 2-ethyl hexanol, 1-dodecanol, and mixtures thereof.

43. The article of claim 36 wherein the solvent is selected from the group consisting of water, a substituted or unsubstituted aliphatic, aromatic or cyclic alcohol having from 1 to about 25 non-hydrogen atoms, ethylene glycol, ethylene glycol monobutyl ether, ethylene glycol acetate monoethyl ether, diethylene glycol, diethylene glycol monobutyl ether, toluene, xylene, ethyl acetate, butyl acetate, methyl ethyl ketone, methyl isobutyl ketone, methyl ethyl ketoxime, mono propylene glycol tertiary butyl ether, propoxy propanol, and mixtures thereof.

44. The article of claim 36 further including a surfactant.

45. The article of claim 36 wherein the coating has a pencil hardness ranging from about 4B to about 4H.

46. The article of claim 45 wherein the pencil hardness ranges from about 2B to about 2H.

47. The article of claim 36 wherein a water drop placed on the coating has a contact angle of 0 to about 10°.

48. The article of claim 47 wherein the contact angle ranges from 0 to about 2°.

49. The article of claim 36 wherein the substrate is a glass, plastic, metallic, stone or ceramic surface.

50. The article of claim 36 wherein the substrate is a window of a car, house, or door.

51. The article of claim 50 wherein the window is a windshield of an automobile.

52. The article of claim 44 wherein the surfactant is selected from the group consisting of ethoxylated acetylenic alcohols, sodium sulfosuccinate, ethylene oxide alkyl phenols, ethylene oxide alcohols, sodium laurel ether sulfate, block ethylene oxide/polyethylene oxide copolymer, an ethoxylated amine, ethoxylated sorbitan ester, random ethylene oxide/polyethylene oxide copolymers, and mixtures thereof.

53. A method of making an article, comprising:

a) applying a composition consisting essentially of the reaction product of a metal oxide composition and a solvent to a substrate; and

b) drying the reaction product on to form a hydrophilic coating.

54. The method of claim 53 wherein the metal of the metal oxide composition is selected from the group consisting of a transition metal of Groups 3-12 metal, a Group 13-15 metal or metalloid, and combinations thereof.

55. The method of claim 53 wherein the metal oxide composition is silica, alumina, titania, or combinations thereof.

56. The method of claim 54 wherein the metal oxide composition in the dispersion has a mean particle size ranging from about 5 to about 20 nm.

57. The method of Claim 56 wherein the metal oxide composition has a mean particle size of about 8 to about 10 nm.

58. The method of claim 53 wherein the metal oxide composition comprises a metal oxide dispersion having a dispersant selected from the group consisting of water and a substituted or unsubstituted aliphatic or aromatic alcohol having from 1 to about 25 non-hydrogen atoms.

59. The method of claim 58 wherein the alcohol is selected from the group consisting of methanol, ethanol, propanol, iso-propanol, 1-butanol, 2-butanol, *tert*-butyl alcohol, a methyl butanol, a dimethyl butanol, cyclohexanol, phenol, 2-ethyl hexanol, 1-dodecanol, and mixtures thereof.

60. The method of claim 53 wherein the solvent is selected from the group consisting of water, a substituted or unsubstituted aliphatic, aromatic or cyclic alcohol having from 1 to about 25 non-hydrogen atoms, ethylene glycol, ethylene glycol monobutyl ether, ethylene glycol acetate monoethyl ether, diethylene glycol, diethylene glycol monobutyl ether, toluene, xylene, ethyl acetate, butyl acetate, methyl ethyl ketone, methyl isobutyl ketone, methyl ethyl ketoxime, mono propylene glycol tertiary butyl ether, propoxy propanol, and mixtures thereof.

61. The method of claim 53 further including a surfactant.

62. The method of claim 53 wherein the coating has a pencil hardness ranging from about 4B to about 4H.

63. The method of claim 63 wherein the pencil hardness ranges from about 2B to about 2H.

64. The method of claim 53 wherein a water drop placed on the coating has a contact angle of 0 to about 10°.

65. The method of claim 64 wherein the contact angle ranges from 0 to about 2°.

66. The method of claim 53 wherein the substrate is a glass, plastic, metallic, stone or ceramic surface.

67. The method of claim 53 wherein the substrate is a window of a car, house, or door.

68. The method of claim 67 wherein the window is a windshield of an automobile.

69. The method of claim 61 wherein the surfactant is selected from the group consisting of ethoxylated acetylenic alcohols, sodium sulfosuccinate, ethylene oxide alkyl phenols, ethylene oxide alcohols, sodium laurel ether sulfate, block ethylene oxide/polyethylene oxide copolymer, an ethoxylated amine, ethoxylated sorbitan ester, random ethylene oxide/polyethylene oxide copolymers, and mixtures thereof.